Early corn secured and being husked, with poor to good yields; late maturing, with poor to fair prospects. Broom corn and forage crops being secured, with good yields.—*C. M. Strong.*

*Oregon.*—Showers were general during the latter half of the month. Thrashing was practically completed by the 12th; the grain crop was a very good one. Hops were nearly all harvested by the 24th; the yield was better than expected. The potato crop was below average both in quantity and quality. Corn matured nicely; the crop was above average. Prunes yielded about one-half of a full crop, though they were excellent in quality.—*Edward A. Beals.*

*Pennsylvania.*—Temperature and precipitation nearly normal. Buckwheat harvesting nearly completed and a full average yield in prospect. Corn cutting well advanced, and late crop nearly safe. Soil in excellent condition; seeding well advanced, and early sown grain up and stand good. Tobacco curing nicely, and crop best in years. Most pastures furnishing ample feed. Garden truck abundant and of good quality. Apple crop light and inferior; peaches and pears fair. No general killing frosts.—*T. F. Townsend.*

*Porto Rico.*—The weather of the month was generally favorable for farm operations and for all growing crops. The drought in the southern and in the northwestern sections was broken during the latter portion of the month. Tobacco seed beds were in excellent condition, and an unusually large acreage was prepared for tobacco planting. Coffee picking begun, with a prospect of a very large crop. Cotton reports were generally unfavorable, and a decreased acreage was indicated. The sugar cane outlook was excellent. Minor crops were generally abundant.—*A. L. Brockway.*

*South Carolina.*—Month unusually dry, with temperature above normal, conditions conducive to rapid ripening of fall crops. Cotton opened freely and over two-thirds of the crop was picked. Except a slight deterioration due mostly to drought, cotton suffered no material change in condition. Some corn was housed, rice thrashed, and a large quantity of prime hay made. The ground was too dry to plow, delaying oat seeding. Truck seed germinated poorly in some districts and all truck suffered from want of rain.—*J. W. Bauer.*

*South Dakota.*—Month warmer than usual, very favorable for ripening an unusually good crop of corn and for curing range grass. Stacking was completed. Thrashing advanced well, though slightly retarded by rains. Very satisfactory yields of oats, barley, spelt, flax, and millet were indicated, but yield and quality of wheat were variable, and considerable barley was discolored. Flax harvest was practically finished. A fine crop of hay was nearly all secured. Potatoes were rather disappointing. Pasturage was good. Fall seeding was in progress. Insufficient moisture retarded plowing.—*S. W. Glenn.*

*Tennessee.*—Conditions were generally favorable for the maturing of crops. Cotton opened rapidly on uplands, but slowly on lowlands, where the plant was still growing; excess of stalk and light fruitage were generally reported. Early corn was a good crop; late corn fairly good. The tobacco crop was fine and was curing well. A short peanut crop was indicated. Late Irish potatoes were fine; sweet potatoes fairly good. Yields of sorghum were generally excellent. The rainfall was generally deficient and plowing and seeding were much hindered. Some early sown grains were coming up.—*H. C. Bate.*

*Texas.*—Generally warm during September, with changes to colder about the end of second and third decades. Rainfall was generally deficient, though good rains fell in localities. Vegetation deteriorated, except in localities where good rains fell. Wheat seeding was delayed and some that was seeded failed to germinate properly. Average condition of cotton did not change greatly. There was some improvement north, but deterioration elsewhere. Boll weevils increased during the month. Weather favorable for picking, which was pushed rapidly. Rice and sugar cane generally did well. Other crops suffered from drought.—*M. E Blystone.*

*Utah.*—Temperatures were about normal, but the average precipitation was considerably above the highest ever recorded previously. Farm work was pushed vigorously, fall crops were mostly gathered, and a great deal of fall seeding was done. Scattering jobs of thrashing were being cleaned up, and the last alfalfa crop and late apples and peaches were being gathered. Beet digging was becoming general. The range was splendid, promising abundant winter feed, and stock was fine.—*R. J. Hyatt.*

*Virginia.*—The weather was more than ordinarily favorable for the securing of crops and for general fall work. Fall seeding was well advanced at the close of the month. While the rainfall was below the average, the pastures and tilled ground remained in good condition. No generally destructive frosts occurred. Corn and tobacco proved good crops. The quality of tobacco was excellent. Apples were generally a poor crop. Potatoes and all truck products were fair.—*R. R. Briggs.*

*Washington.*—The month was warm and the latter part unusually rainy; in the northwest counties it was the wettest September on record. Hop picking and thrashing of wheat and oats were interrupted by wet weather. Hop crop was below average. Wheat crop was very good, although some was injured by drought and hot winds; some was wet in shock. Oats were wet in shock, and somewhat discolored in northwest counties; yield good, but a trifle below average. Potato digging in progress; good yield. Pastures improved. Fall plowing and seeding in progress.—*G. N. Salisbury.*

*West Virginia.*—The weather was very favorable for farm work and occasional showers during the first half were beneficial for crop growth. Plowing progressed rapidly and some seeding was done. At the close of the month corn cutting was nearing completion, with a good yield, pastures were drying up, but stock was in good condition, and millet, buckwheat, and cowpeas were mostly cut, with fairly good yields. The prospects for apples were for less than half a crop.—*E. C. Vose.*

*Wisconsin.*—Killing frosts occurred over the northern and central counties on the 12th and 13th, resulting in considerable damage to corn, potatoes, and gardens. No frost of consequence occurred in the southern section during the month. Corn was generally a very satisfactory crop, but potatoes were poor both in quality and yield. Apples were generally light. The cranberry crop was damaged by high water and insects and the yield was quite unsatisfactory.—*W. M. Wilson.*

*Wyoming.*—The first half of the month was favorable for the maturing and harvesting of grain, and a good to excellent crop was secured in all sections of the State. Late haying was completed under favorable conditions. Over much of the lower portions of the State no severe frosts occurred during the entire month, and all grain crops and vegetables matured without being injured by freezing.—*W. S. Palmer.*

## SPECIAL ARTICLES.

### THE LIFTING POWER OF ASCENDING CURRENTS OF AIR.

By HENRY HELM CLAYTON. Dated Blue Hill Observatory, October 17, 1905.

Several instances of the lifting power of the ascending currents of air in ordinary quiet summer weather have come to my attention, and may be of interest to students of the atmosphere and aeronautics.

The first was on August 6, 1894, soon after beginning work with kites at Blue Hill, when a small kite belonging to Mr. Eddy was caught in an ascending current about 50 feet above Blue Hill and lifted rapidly toward the zenith, circling above the heads of the observers as it rose. The string hung loosely beneath the kite, which continued to draw up fresh string from the ground as it ascended. A large cumulus cloud was passing the zenith at the time, and after the kite had risen some 500 feet it slowly followed the cloud off toward the east, but continued to ascend until 1172 feet of cord had been carried up and the kite was estimated to be about 1000 feet above the hill. At this point the kite was drawn out of the ascending current, and being unable to support its own weight and that of the string fell rapidly to the ground. This description is condensed from notes made by me at the time. The occurrence was witnessed by some half dozen persons, among them being Mr. John Ritchie, jr., of Boston, Mass., who sends the following account of a similar occurrence:

On Friday, September 8, 1905, the walking party of the Appalachian Mountain Club observed a curious atmospheric phenomenon, the action apparently of a vortex. The party had reached the northern summit of Chocorua, in the Sandwich Range, N. H., a subordinate peak, which itself rises sharply from its valleys; its height above the sea is about 3000 feet. The party was seated on the summit engaged in consuming the luncheon, when Mr. J. A. Alden called attention to the movement of a bit of a paper from his box. It was a piece of common paraffine paper, perhaps six by four inches, and had been folded. It was blown out of the box by the wind and, instead of drifting horizontally or settling, it began at once to rise in the air. It retained its folded form, making three sides of a parallelopipedon, there being no ends. The day was perfectly clear and there was very little wind stirring. The sky was bright, blue, and a few small cumulus clouds hung about, not more than half a dozen and all of them small. One of the clouds was to the north of the peak and the others to the south. The attention of the party was directed to the paper which floated steadily upward with moderate velocity. It was not as if blown by a gust of wind, but rose quietly and steadily. We watched it until it became difficult to see, even with the sun shining on it, and finally lost it. We estimated that it had risen at least a thousand feet before it became invisible. It rose at a small angle to the vertical and disappeared at an apparent elevation of about 70° above the horizon. It did not drift in the direction of any clouds, but midway between the two groups. Its general drift was to the west.

In my opinion both the kite and the paper were lifted by

ordinary ascending currents of air such as commonly exist on summer days. It will be noticed that in both cases the objects started from a considerable elevation above sea level, where the currents had decided vertical velocity. It is probable that near the ground over a level country the air can have no great vertical motion, except in whirlwinds, so that phenomena of this kind are not observed. The kites flown at Blue Hill frequently give evidence of strong vertical uplift when they are at a considerable distance above the ground. On May 1, 1900, a kite weighing eleven pounds, carrying a meteorograph weighing three pounds, and 1000 feet of wire weighing about five pounds, was lifted to an angle of 90° above the horizon as measured by a theodolite, and remained in the vicinity of the zenith for nearly two minutes.

## RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

C. FITZHUGH TALMAN, Acting Librarian.

The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to officials and employees who make application for them.

**Bremen.**
Deutsches meteorologisches Jahrbuch für 1904. Jahrg. XV. xii, 76 pp. f°. Bremen. 1905.

**Comité international des poids et mesures.**
Procès-verbaux des séances. Session de 1905. vi, 243 pp. 8°. Paris. 1905.

**Hamburg. Deutsche Seewarte.**
Wind, Strom, Luft- und Wassertemperatur des Mittelmeeres. (Beilage zu den "Annalen der Hydrographie." 1905.) 60 pp. 4°. Berlin. [1905.]

**Holland. Koninklijk Nederlandsch Meteorologisch Instituut.**
Onweders, optische verschijnselen, enz., in Nederland, 1903. 101 pp. 8°. Amsterdam. 19 5.

**Natal. Government Astronomer.**
Report of the Government Astronomer, 1904. 55 pp. f°. Pietermaritzburg. 1905.

**Observatoire magnétique et météorologique de Zi-Ka-Wei.**
Bulletin des observations. Année 1902. xii, 221 pp. f°. Chang-Hai. 1905.

**Riabouchinsky, D.**
Institut aérodynamique de Koutchino [Description of]. 8 pp. 8°. St. Petersburg. 1905.

**Schubert, Johannes.**
Der Wärmeaustausch im festen Erdboden, in Gewässern und in der Atmosphäre. 30 pp. 8°. Berlin. 1904.
Wald und Niederschlag in Westpreussen und Posen. 15 pp. 8°. Eberswalde. 1905.

**South Australia. Government Astronomer, etc.**
Meteorological observations made at the Adelaide Observatory and other places in South Australia and the Northern Territory during the year 189 . xvi, 91 pp. f°. Adelaide. 1902.
[Same for] 1900-1901. xx, 167 pp. f°. Adelaide. 1904.

**Udden, Johan August.**
On the cyclonic distribution of rainfall. 21 pp. 4°. Rock Island. 1905.

**Walz, F. J.**
Fake weather forecasts. (Reprinted from Popular Science Monthly, October, 1905.) Pp. 503-513.

**Western Australia. Government Astronomer.**
Meteorological observations made at the Perth Observatory and other places in Western Australia during the year 1902. 143 pp. f°. Perth. 1903.

Yearbook of scientific and learned societies of Great Britain and Ireland, 1904. vi, 300 pp. 8°. London. 1905.

## RECENT PAPERS BEARING ON METEOROLOGY.

C. FITZHUGH TALMAN, Acting Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a ——

*American Journal of Science. New Haven. 4th Series. Vol. 20.*
**Barus, Carl.** On groups of efficient nuclei in dust-free air. Pp. 297-300.

*Bulletin of the American Geographical Society. New York. Vol. 37.*
**Peary, R[obert] E[dwin].** Peary Arctic Club expedition, summer of 1905. Pp. 594-600.
**W[ard], R[obert] DeC[ourcy].** Antarctic meteorology. [Note on paper by R. C. Mossman in Symons met. mag., June, 1905.] Pp. 613-614.
**W[ard], R[obert] DeC[ourcy].** Chilean meteorology. Pp. 606-607.
**W[ard], R[obert] DeC[ourcy].** Climate and weather of Turkestan. [*Review of* Explorations in Turkestan. By Pumpelly, W. M. Davis, and E. Huntington.] Pp. 608-609.
**W[ard], R[obert] DeC[ourcy].** Flow of the Thames in relation to pressure and rainfall changes. [Note on paper by W. J. S. Lockyer in Nature, June 22, 1905.] P. 611.
**W[ard], R[obert] DeC[ourcy].** Inversions of temperature on Ben Nevis. [Note on paper by A. Watt in Nature, v. 71, p. 583.] Pp. 611-612.
**W[ard], R[obert] DeC[ourcy].** Meteorological results of the Nansen expedition. [*Review of* the Norwegian North Polar expedition, 1893-1896. Scientific results; vol. 6, Meteorology. By H. Mohn.] Pp. 629-632.
**W[ard], R[obert] DeC[ourcy].** Meteorology of India, 1892-1902. P. 609.
**W[ard], R[obert] DeC[ourcy].** Nile basin rains. [*Review of* Rains of the Nile basin in 1904. By H. G. Lyons.] Pp. 600-601.

*Physical Review. Lancaster. Vol. 21.*
**Holborn, L., and Austin L. W.** On the specific heat of gases at high temperatures. Pp. 209-228.

*Scientific American. New York. Vol. 93.*
—— Apparatus for observing and automatically registering thunderstorms. P. 278.
—— Dufaux flying machine. P. 316.
—— Long-distance balloon race from Liege. P. 278.
—— Prevention of hailstorms. A review of recent experiments. P. 322.

*Terrestrial Magnetism and Atmospheric Electricity. Baltimore. Vol. 10.*
**Burbank, J. E.** Specific electrical conductivity of the air at sea. P. 126-129.

*Western Electrician. Chicago. Vol. 37.*
—— Effect on atmospheric electricity of the eruption of Mount Pelée. P. 274.

*Geographical Journal. London. Vol. 26.*
**Lyons, H. G.** On the Nile flood and its variation. Pp. 395-421. Continued from P 272.

*Science Abstracts. London. Vol. 8.*
**Ros[enhain], W.** Direct-reading resistance thermometers. Composite thermo-couples. [Abstract from A. Campbell, Phys. soc. proc., v. 19, p. 555-565.] P. 571.

*Archives des Sciences Physiques et Naturelles. Genève. 4 Période. Tome 20.*
**Bjerknes, V.** Sur la formation des tourbillons dans un fluide sans frottement avec une application à l'analogie des phénomènes hydrodynamiques et électrostatiques. Pp. 268-284.
—— Observations météorologiques faites aux fortifications de Saint Maurice pendant les mois de mars, avril, et mai, 1905. Pp. 285-292.

*Comptes Rendus de l'Académie des Sciences. Paris. Tome 141.*
**De la Vaulx, Henry and Jaubert, Joseph.** Sur les observations météorologiques faites à Constantine pendant l'éclipse du 30 août, 1905. Pp. 512-513.
**Deslandres, H.** Note préliminaire sur l'observation de l'éclipse totale du soleil du 30 août 1905, à Burgos. Pp. 517-518.
**Eginitis, D.** Observation de l'éclipse solaire du 30 août à Athénes. Pp. 520-521.
**Libert, Lucien.** Sur le phénomène des ombres volantes. P. 513-514.
**Meslin, Georges.** Sur l'éclipse du 30 août 1905 et sur la polarisation de la couronne solaire. P. 493-496.
**Moureau, Th.** Trombe du 28 août 1905 à Saint-Maur et à Champigny (Seine). Pp 510-511.
**Monaco, Albert, Prince de.** Sur les lancements de ballons sondes et de ballons pilotes au-dessus des océans. Pp. 492-493.
**Rayet, C.** Éclipse totale du soleil du 30 août 1905. Pp. 490-491.
**Salet.** Observation de l'éclipse totale du 30 août 1905 faite à Robertville (Algérie). Pp. 528.

*L'Aérophile. Paris. 13 année.*
**Nicolleau, A.** Le Santos-Dumont XIV à Trouville. Pp. 200-201.
**Goupil, A.** Calculs sur l' aéroplane de M. Archdeacon. Pp, 207-209.
**Masfrand, A. de.** Aéronautes et l'éclipse du 30 août 1905. Pp. 202-206.